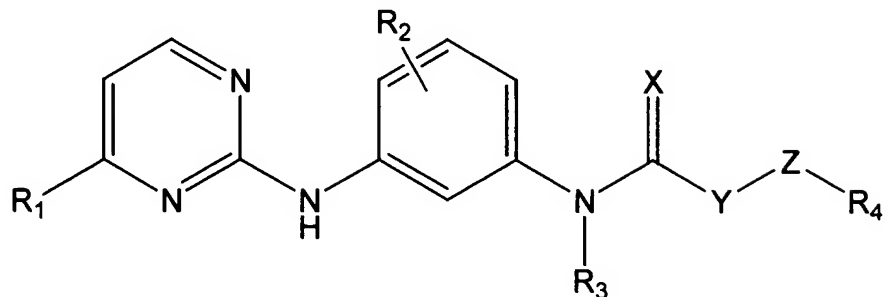


What is claimed is:

1. A phenylaminopyrimidine derivative of formula (I)



Formula (I)

Wherein

X is oxygen or sulfur,

Y is a direct bond, oxygen, nitrogen or lower alkyl,

Z is an aliphatic, cycloaliphatic, aryl or a heterocyclyl radical,

R₁ is heterocyclyl radical,

R₂ is hydrogen, halogen, halogenlower alkyl, lower alkyl or lower alkoxy,

R₃ is hydrogen or lower alkyl,

R₄ is oxy-lower alkylamino, lower alkyl oxy-lower alkylamino, oxyheterocyclyl, lower alkyl oxyheterocyclyl, oxy-lower alkylheterocyclyl, lower alkyl oxy-lower alkylheterocyclyl, halogenlower alkylamino, halogenlower alkylheterocyclyl, amino lower alkylamino, lower alkylamino lower alkylamino, aminoheterocyclyl, lower alkylamino heterocyclyl, amino lower alkylheterocyclyl or lower alkylamino lower alkylheterocyclyl.

or a pharmaceutically acceptable salt thereof.

2. A compound of Formula (I) according to claim 1, wherein

X is oxygen or sulfur,

Y is a direct bond, oxygen, nitrogen or lower alkyl,

Z is an aliphatic, cycloaliphatic, aryl or a heterocyclyl radical,

R₁ is heterocyclyl radical,

R₂ is hydrogen, halogen, halogenlower alkyl, lower alkyl or lower alkoxy,

R₃ is hydrogen or lower alkyl,

R₄ is:

(a) oxy-lower alkyl unsubstituted, mono or disubstituted amino; oxy-lower alkyl morpholinyl, oxy-lower alkyl pyrrolidinyl, oxy-lower alkyl piperidinyl, oxy-lower alkyl piperazinyl, oxy-lower alkyl aminopyridinyl, oxy-pyrrolidinyl, oxy-piperidinyl,

(b) lower alkyl oxy-lower alkyl unsubstituted, mono or disubstituted amino; lower alkyl oxy-lower alkyl morpholinyl, lower alkyl oxy-lower alkyl pyrrolidinyl, lower alkyl oxy-lower alkyl piperidinyl, lower alkyl oxy-lower alkyl piperazinyl, lower alkyl oxy-lower alkyl aminopyridinyl, lower alkyl oxy-pyrrolidinyl, lower alkyl oxy-piperidinyl,

(c) mono or difluoro substituted lower alkyl unsubstituted, mono or disubstituted amino; mono or difluoro substituted lower alkyl morpholinyl, mono or difluoro substituted lower alkyl pyrrolidinyl, mono or difluoro substituted lower alkyl piperidinyl, mono or difluoro substituted lower alkyl piperazinyl, mono or difluoro substituted lower alkyl aminopyridinyl,

(d) amino lower alkyl unsubstituted, mono or disubstituted amino; amino lower alkyl morpholinyl, amino lower alkyl pyrrolidinyl, amino lower alkyl piperidinyl, amino lower alkyl piperazinyl, amino lower alkyl aminopyridinyl, amino pyrrolidinyl, amino piperidinyl,

(e) lower alkylamino lower alkyl unsubstituted, mono or disubstituted amino; lower alkylamino lower alkyl morpholinyl, lower alkylamino lower alkyl pyrrolidinyl, lower alkylamino lower alkyl piperidinyl, lower alkylamino lower alkyl piperazinyl, lower alkylamino lower alkyl aminopyridinyl, lower alkylamino pyrrolidinyl, lower alkyl amino piperidinyl.

or a pharmaceutically acceptable salt thereof.

3. A compound of Formula (I) according to claim 1, wherein

X is oxygen or sulfur,

Y is a direct bond,

Z is an aliphatic, cycloaliphatic, aryl or a heterocyclyl radical,

R₁ is heterocyclyl radical,

R₂ is hydrogen, halogen, halogenlower alkyl, lower alkyl or lower alkoxy,

R₃ is hydrogen or lower alkyl,

R₄ is:

(a) oxy-lower alkyl unsubstituted, mono or disubstituted amino; oxy-lower alkyl morpholinyl, oxy-lower alkyl pyrrolidinyl, oxy-lower alkyl piperidinyl, oxy-lower alkyl piperazinyl, oxy-lower alkyl aminopyridinyl, oxy-pyrrolidinyl, oxy-piperidinyl,

(b) lower alkyl oxy-lower alkyl unsubstituted, mono or disubstituted amino; lower alkyl oxy-lower alkyl morpholinyl, lower alkyl oxy-lower alkyl pyrrolidinyl, lower alkyl oxy-lower alkyl piperidinyl, lower alkyl oxy-lower alkyl piperazinyl, lower alkyl oxy-lower alkyl aminopyridinyl, lower alkyl oxy-pyrrolidinyl, lower alkyl oxy-piperidinyl,

(c) mono or difluoro substituted lower alkyl unsubstituted, mono or disubstituted amino; mono or difluoro substituted lower alkyl morpholinyl, mono or difluoro substituted lower alkyl pyrrolidinyl, mono or difluoro substituted lower alkyl piperidinyl, mono or difluoro substituted lower alkyl piperazinyl, mono or difluoro substituted lower alkyl aminopyridinyl,

(d) amino lower alkyl unsubstituted, mono or disubstituted amino; amino lower alkyl morpholinyl, amino lower alkyl pyrrolidinyl, amino lower alkyl piperidinyl, amino lower alkyl piperazinyl, amino lower alkyl aminopyridinyl, amino pyrrolidinyl, amino piperidinyl,

(e) lower alkylamino lower alkyl unsubstituted, mono or disubstituted amino; lower alkylamino lower alkyl morpholinyl, lower alkylamino lower alkyl pyrrolidinyl, lower alkylamino lower alkyl piperidinyl, lower alkylamino lower alkyl piperazinyl, lower alkylamino lower alkyl aminopyridinyl, lower alkylamino pyrrolidinyl, lower alkyl amino piperidinyl.

or a pharmaceutically acceptable salt thereof.

4. A compound of Formula (I) according to claim 1, wherein

X is oxygen or sulfur,

Y is a direct bond,

Z is aryl,

R₁ is heterocyclyl radical,

R₂ is hydrogen, halogen, halogenlower alkyl, lower alkyl or lower alkoxy,

R₃ is hydrogen or lower alkyl,

R₄ is:

(a) oxy-lower alkyl unsubstituted, mono or disubstituted amino; oxy-lower alkyl morpholinyl, oxy-lower alkyl pyrrolidinyl, oxy-lower alkyl piperidinyl, oxy-lower alkyl piperazinyl, oxy-lower alkyl aminopyridinyl, oxy-pyrrolidinyl, oxy-piperidinyl,

(b) lower alkyl oxy-lower alkyl unsubstituted, mono or disubstituted amino; lower alkyl oxy-lower alkyl morpholinyl, lower alkyl oxy-lower alkyl pyrrolidinyl, lower alkyl oxy-lower alkyl piperidinyl, lower alkyl oxy-lower alkyl piperazinyl, lower alkyl oxy-lower alkyl aminopyridinyl, lower alkyl oxy-pyrrolidinyl, lower alkyl oxy-piperidinyl,

(c) mono or difluoro substituted lower alkyl unsubstituted, mono or disubstituted amino; mono or difluoro substituted lower alkyl morpholinyl, mono or difluoro substituted lower alkyl pyrrolidinyl, mono or difluoro substituted lower alkyl piperidinyl, mono or difluoro substituted lower alkyl piperazinyl, mono or difluoro substituted lower alkyl aminopyridinyl,

(d) amino lower alkyl unsubstituted, mono or disubstituted amino; amino lower alkyl morpholinyl, amino lower alkyl pyrrolidinyl, amino lower alkyl piperidinyl, amino lower alkyl piperazinyl, amino lower alkyl aminopyridinyl, amino pyrrolidinyl, amino piperidinyl,

(e) lower alkylamino lower alkyl unsubstituted, mono or disubstituted amino; lower alkylamino lower alkyl morpholinyl, lower alkylamino lower alkyl pyrrolidinyl, lower alkylamino lower alkyl piperidinyl, lower alkylamino lower alkyl piperazinyl, lower alkylamino lower alkyl aminopyridinyl, lower alkylamino pyrrolidinyl, lower alkyl amino piperidinyl.

or a pharmaceutically acceptable salt thereof.

5. A compound of Formula (I) according to claim 1, wherein

X is oxygen or sulfur,

Y is a direct bond,

Z is aryl,

R₁ is heterocyclyl radical,

R₂ is halogenlower alkyl or lower alkyl,

R₃ is hydrogen or lower alkyl,

R₄ is:

(a) oxy-lower alkyl unsubstituted, mono or disubstituted amino; oxy-lower alkyl morpholinyl, oxy-lower alkyl pyrrolidinyl, oxy-lower alkyl piperidinyl, oxy-lower alkyl piperazinyl, oxy-lower alkyl aminopyridinyl, oxy-pyrrolidinyl, oxy-piperidinyl,

(b) lower alkyl oxy-lower alkyl unsubstituted, mono or disubstituted amino; lower alkyl oxy-lower alkyl morpholinyl, lower alkyl oxy-lower alkyl pyrrolidinyl, lower alkyl oxy-lower alkyl piperidinyl, lower alkyl oxy-lower alkyl piperazinyl, lower alkyl oxy-lower alkyl aminopyridinyl, lower alkyl oxy-pyrrolidinyl, lower alkyl oxy-piperidinyl,

(c) mono or difluoro substituted lower alkyl unsubstituted, mono or disubstituted amino; mono or difluoro substituted lower alkyl morpholinyl, mono or difluoro substituted lower alkyl pyrrolidinyl, mono or difluoro substituted lower alkyl piperidinyl, mono or difluoro substituted lower alkyl piperazinyl, mono or difluoro substituted lower alkyl aminopyridinyl,

(d) amino lower alkyl unsubstituted, mono or disubstituted amino; amino lower alkyl morpholinyl, amino lower alkyl pyrrolidinyl, amino lower alkyl piperidinyl, amino lower alkyl piperazinyl, amino lower alkyl aminopyridinyl, amino pyrrolidinyl, amino piperidinyl,

(e) lower alkylamino lower alkyl unsubstituted, mono or disubstituted amino; lower alkylamino lower alkyl morpholinyl, lower alkylamino lower alkyl pyrrolidinyl, lower alkylamino lower alkyl piperidinyl, lower alkylamino lower alkyl piperazinyl, lower alkylamino lower alkyl aminopyridinyl, lower alkylamino pyrrolidinyl, lower alkyl amino piperidinyl.

or a pharmaceutically acceptable salt thereof.

6. A compound of Formula (I) according to claim 1, wherein

X is oxygen or sulfur,

Y is a direct bond,

Z is aryl,

R₁ is heterocyclyl radical,

R₂ is lower alkyl,

R₃ is hydrogen,

R₄ is:

(a) oxy-lower alkyl unsubstituted, mono or disubstituted amino; oxy-lower alkyl morpholinyl, oxy-lower alkyl pyrrolidinyl, oxy-lower alkyl piperidinyl, oxy-lower alkyl piperazinyl, oxy-lower alkyl aminopyridinyl, oxy-pyrrolidinyl, oxy-piperidinyl,

(b) lower alkyl oxy-lower alkyl unsubstituted, mono or disubstituted amino; lower alkyl oxy-lower alkyl morpholinyl, lower alkyl oxy-lower alkyl pyrrolidinyl, lower alkyl oxy-lower alkyl piperidinyl, lower alkyl oxy-lower alkyl piperazinyl, lower alkyl oxy-lower alkyl aminopyridinyl, lower alkyl oxy-pyrrolidinyl, lower alkyl oxy-piperidinyl,

(c) mono or difluoro substituted lower alkyl unsubstituted, mono or disubstituted amino; mono or difluoro substituted lower alkyl morpholinyl, mono or difluoro substituted lower alkyl pyrrolidinyl, mono or difluoro substituted lower alkyl piperidinyl, mono or difluoro substituted lower alkyl piperazinyl, mono or difluoro substituted lower alkyl aminopyridinyl,

(d) amino lower alkyl unsubstituted, mono or disubstituted amino; amino lower alkyl morpholinyl, amino lower alkyl pyrrolidinyl, amino lower alkyl piperidinyl, amino lower alkyl piperazinyl, amino lower alkyl aminopyridinyl, amino pyrrolidinyl, amino piperidinyl,

(e) lower alkylamino lower alkyl unsubstituted, mono or disubstituted amino; lower alkylamino lower alkyl morpholinyl, lower alkylamino lower alkyl pyrrolidinyl, lower alkylamino lower alkyl piperidinyl, lower alkylamino lower alkyl piperazinyl, lower alkylamino lower alkyl aminopyridinyl, lower alkylamino pyrrolidinyl, lower alkyl amino piperidinyl.

or a pharmaceutically acceptable salt thereof.

7. A compound of Formula (I) according to claim 1, wherein

X is oxygen,

Y is a direct bond,

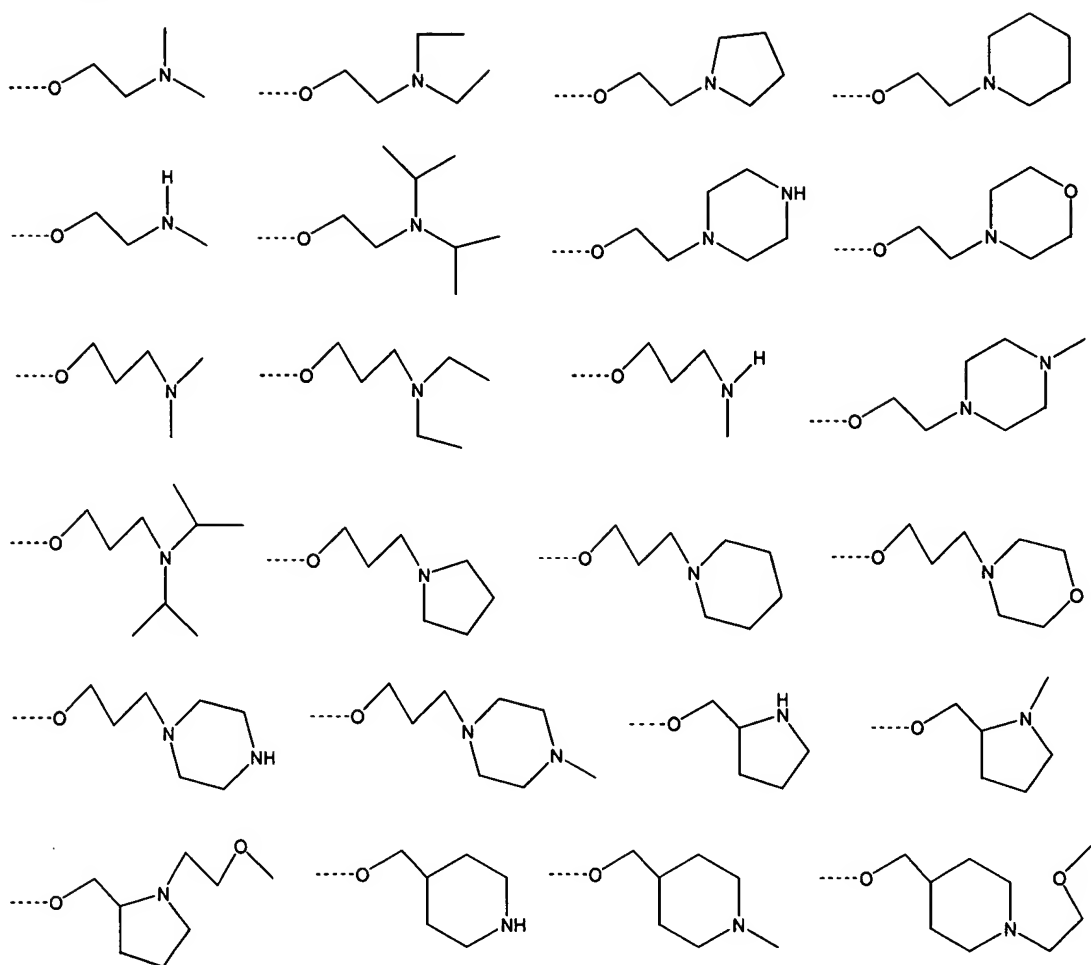
Z is phenyl,

R₁ is: 3-pyridyl or 4-pyridyl

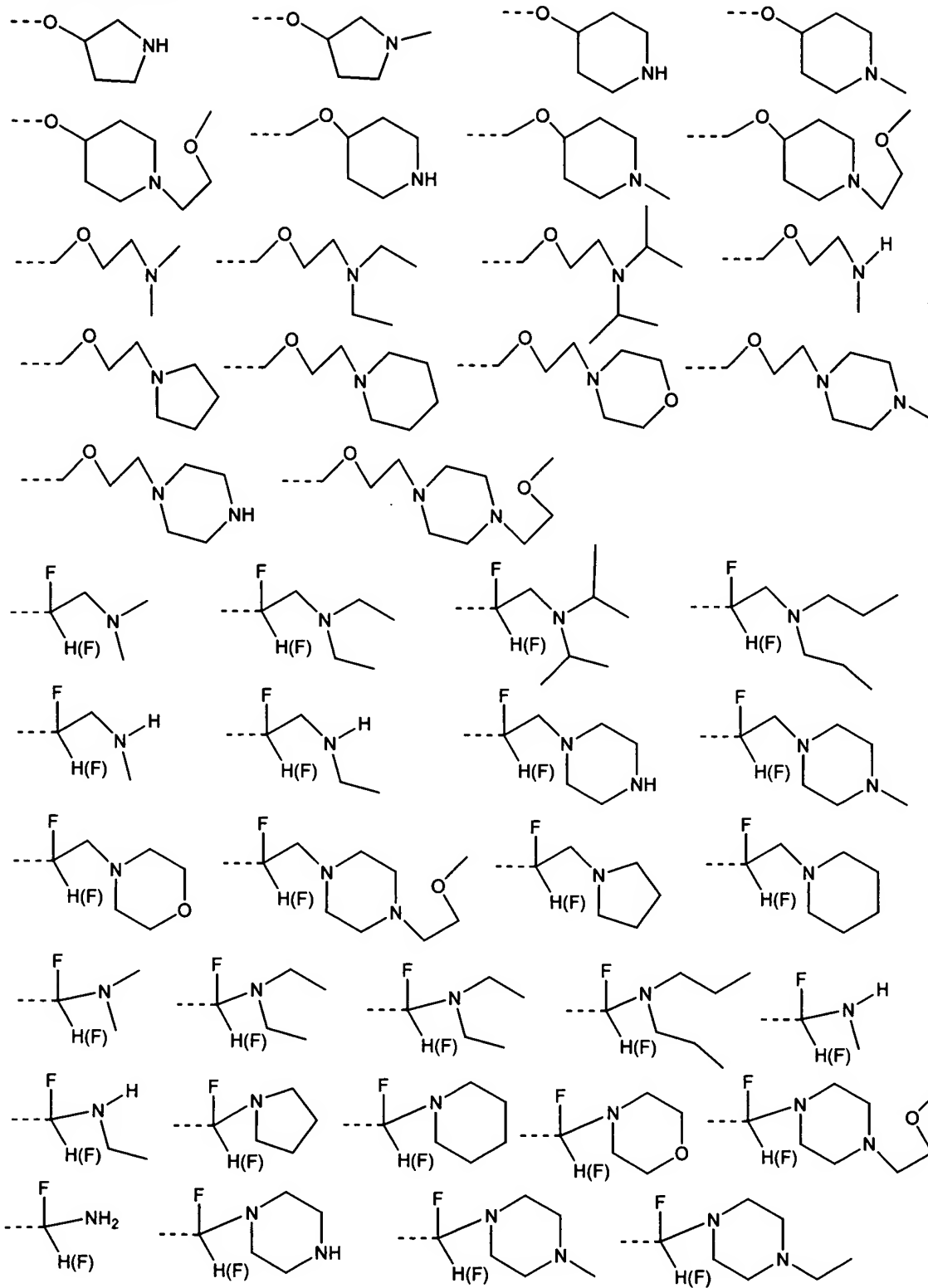
R₂ is: methyl, F, Cl or hydrogen,

R₃ is hydrogen,

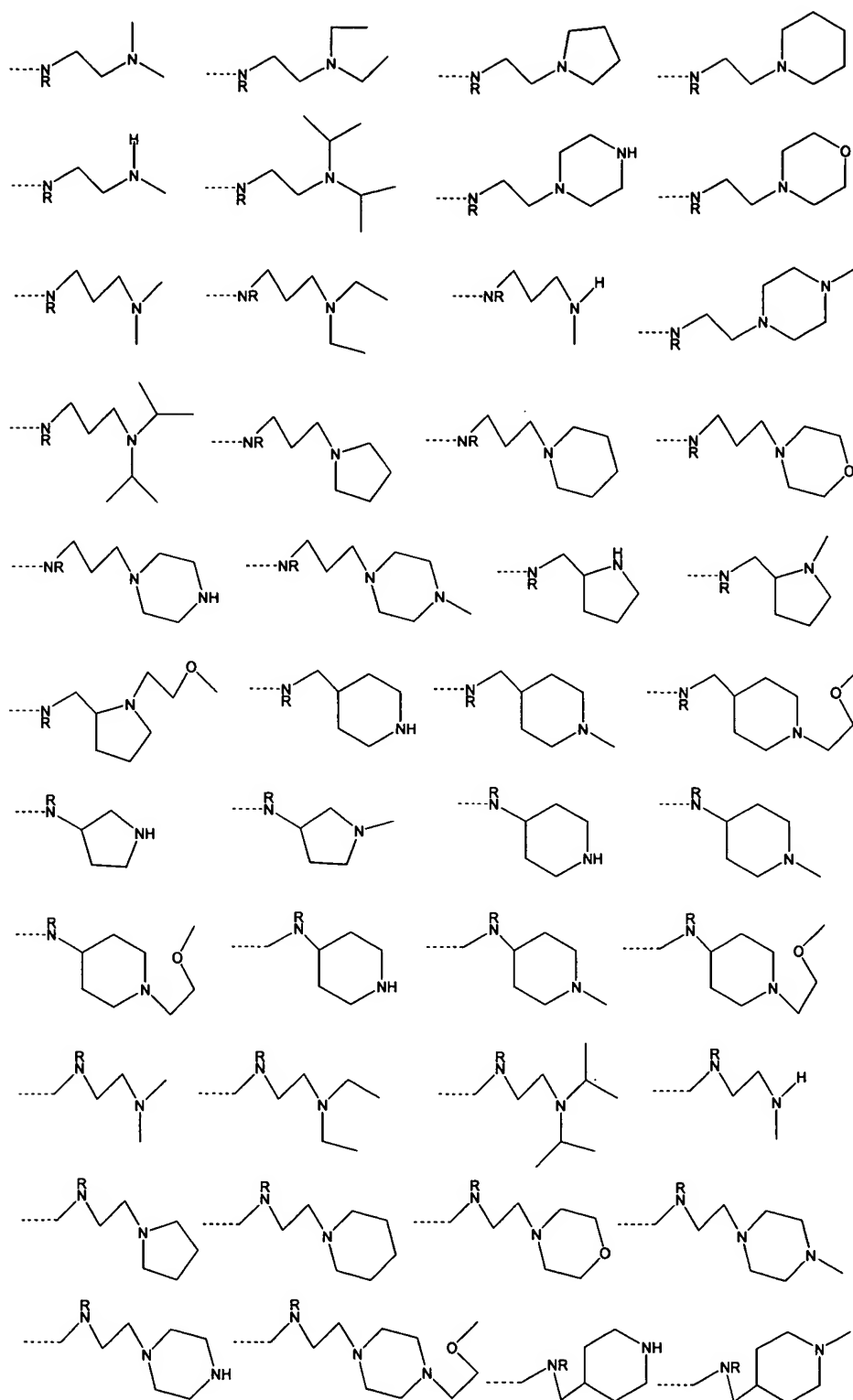
R₄ is:



R₄ is (cont'd) :



R₄ is (cont'd) :



R is hydrogen, lower alkyl, aliphatic, cycloaliphatic or heterocyclyl radicals.
or a pharmaceutically acceptable salt thereof.

8. A compound of Formula (I) according to claim 1 is selected from:

[4-(2-aminoethoxy)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)-pyrimidin-2-yl)amino]phenyl} carboxamide

N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} {4-[(1-methylpyrrolidin-3-yl)amino]phenyl} carboxamide

[4-(fluoropiperazinylmethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)-pyrimidin-2-yl)amino]phenyl} carboxamide

N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} -{4-[(1-methylpyrrolidin-2-yl)methoxy]phenyl} carboxamide

N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} [4-(pyrrolidin-3-ylamino)phenyl] carboxamide

[4-(aminofluoromethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} [4-(methylpyrrolidin-3-ylamino)phenyl] carboxamide

{4-[fluoro(4-methylpiperazinyl)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

[4-(aminodifluoromethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

{4-[methyl(1-methylpyrrolidin-3-yl)amino]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

(4-{fluoro[(1-methylpyrrolidin-3-yl)amino]methyl}phenyl)-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

{4-[fluoro(methylpyrrolidin-3-ylamino)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

[4-({[2-(dimethylamino)ethyl]amino} fluoromethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

[4-(difluoropiperazinylmethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

{4-[difluoro(4-methylpiperazinyl)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl} carboxamide

[4-({[2-(dimethylamino)ethyl]amino}difluoromethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

(4-{fluoro[methyl(1-methylpyrrolidin-3-yl)amino]methyl}-phenyl)-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-[fluoro(pyrrolidin-3-ylamino)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-[(4-ethylpiperazinyl)difluoromethyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-[(4-ethylpiperazinyl)fluoromethyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

(4-{difluoro[methyl(1-methylpyrrolidin-3-yl)amino]methyl}-phenyl)-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-[difluoro(methylpyrrolidin-3-ylamino)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

[4-({[2-(dimethylamino)ethyl]amino}fluoromethyl)phenyl]-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-[difluoro(pyrrolidin-3-ylamino)methyl]phenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

(4-{[methyl(1-methylpyrrolidin-3-yl)amino]methyl}phenyl)-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-(methylpyrrolidin-3-ylamino)methylphenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

(4-{[(1-methylpyrrolidin-3-yl)amino]methyl}phenyl)-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

{4-(pyrrolidin-3-ylamino)methylphenyl}-N-{4-methyl-3-[(4-(3-pyridyl)pyrimidin-2-yl)amino]phenyl}carboxamide

or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical acceptable salt according to any one of claims 1 to 8 is methanesulfonic acid salt.

10. A pharmaceutical composition containing a compound of formula (I) according to any one of claims 1 to 9 , or a pharmaceutical acceptable salt thereof, or a hydrate or solvate thereof, together with a pharmaceutical carrier.

11. A compound of formula (I) according to any one of claims 1 to 9 , or a pharmaceutical acceptable salt thereof, or a hydrate or solvate thereof, for use in a method for the treatment of human or animal cancer.